

MOTOR AUTO REPAIR MANUAL

51st Edition

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Rochester Varajet 2SE & E2SE Series Carburetors

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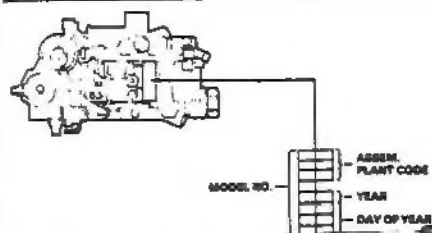


Fig. 1 Carburetor model identification number location

IDENTIFICATION LOCATION

The carburetor model identification is stamped vertically on the float bowl in the flat area adjacent to the vacuum tube, Fig. 1.

DESCRIPTION

The Varajet models 2SE and E2SE, Figs. 2 and 3, are two barrel, two stage, down draft design carburetors. Aluminum die castings are used for the air horn, float bowl and throttle body. A heat insulator gasket is used between the throttle body and float bowl to reduce heat transfer to the float bowl.

The primary stage has a triple venturi with a small 35 mm bore, resulting in good fuel metering control during idle and part throttle operation. The secondary stage has a 46 mm bore, providing sufficient air capacity for engine power requirements. An air valve is used in the secondary stage with a single tapered metering rod.

The float chamber is internally vented through a vertical vent cavity in the air horn. The float chamber is also externally vented through a tube in the air horn. A hose connects this tube directly to a vacuum operated vapor vent valve located in the vapor canister. When the engine is not running, the canister vapor vent valve is open, allowing fuel vapor from the float chamber to pass into the canister where the vapor is stored until normally purged.

An adjustable part throttle screw is used in the float bowl to aid emission control. This screw is factory pre-set and a plug is installed to prevent further adjustment or fuel leakage. The plug should not be removed or the screw setting disturbed. If float bowl replacement is required, the ser-

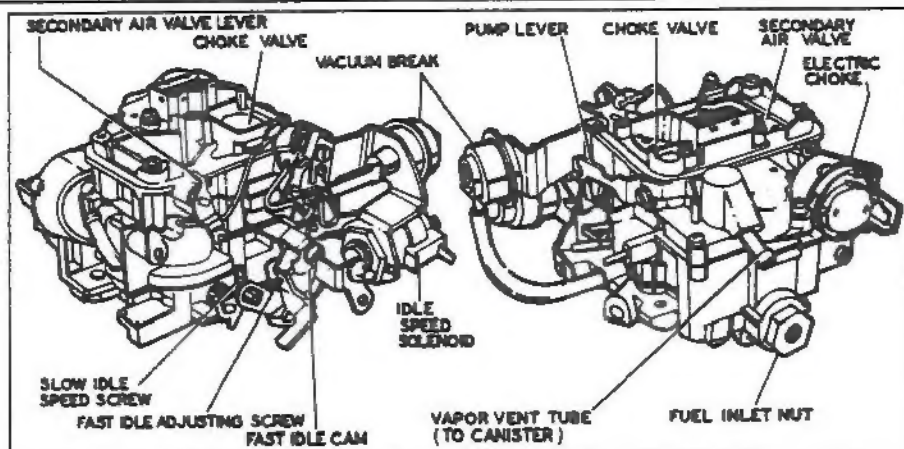


Fig. 2 Rochester Varajet 2SE carburetor

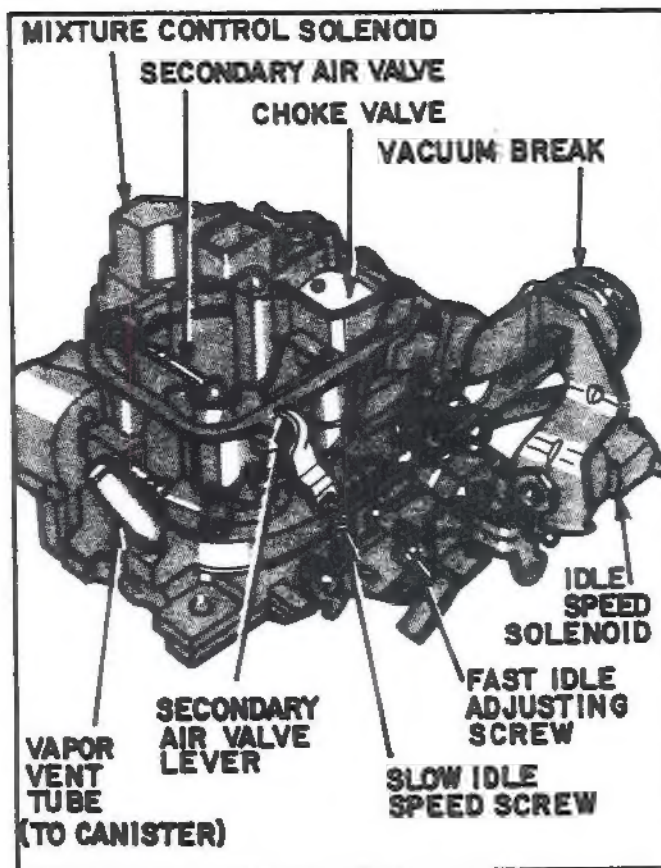


Fig. 3 Rochester Varajet E2SE carburetor

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ADJUSTMENT SPECIFICATIONS

Year	Carb. Production No.	Float Level	Choke Coil Lever	Choke Rod	Vacuum Break		Air Valve Rod	Choke Setting	Unloader	Secondary Lockout
					Primary	Secondary				
1982	17081600, 06	5/16	.085	18°	23°	27°	1°	①	35°	.025
	17081601	5/16	.085	18°	21°	27°	1°	①	35°	.025
	17081607, 09	5/16	.085	21°	27°	27°	1°	①	35°	.025
	17082300, 04	5/16	.085	18°	23°	27°	1°	①	35°	.025
	17082301, 03	5/16	.085	18°	21°	27°	1°	①	35°	.025
	17082305	5/16	.085	21°	23°	27°	1°	①	35°	.025
	17082316	1/4	.085	17°	30°	34°	1°	①	45°	.025
	17082317	1/4	.085	17°	30°	35°	1°	①	45°	.025
	17082320, 21	1/4	.085	25°	30°	35°	1°	①	45°	.025
	17082390	13/32	.085	17°	30°	34°	1°	①	45°	.025
	17082391	13/32	.085	25°	30°	35°	1°	①	45°	.025
	17082446, 48	5/16	.085	18°	20°	27°	1°	①	35°	.025
	17082447, 49	5/16	.085	18°	20°	25°	1°	①	35°	.025
	17082490	13/32	.085	17°	30°	34°	1°	①	45°	.025
	17082491	13/32	.085	25°	30°	35°	1°	①	45°	.025
	17082630	5/16	.085	18°	23°	27°	1°	①	35°	.025
	17082631	5/16	.085	18°	23°	25°	1°	①	35°	.025
	17082632	5/16	.085	18°	20°	27°	1°	①	35°	.025
	17082640	1/4	.085	17°	30°	34°	1°	①	45°	.025
	17082641	1/4	.085	17°	30°	35°	1°	①	45°	.025
	17082642	1/4	.085	25°	30°	35°	1°	①	45°	.025
1983	17083356	13/32	.085	22°	25°	35°	1°	①	30°	.025
	17083357	13/32	.085	22°	25°	35°	1°	①	30°	.025
	17083358	13/32	.085	22°	25°	35°	1°	①	30°	.025
	17083359	13/32	.085	22°	25°	35°	1°	①	30°	.025
	17083368	1/8	.085	22°	25°	35°	1°	①	30°	.025
	17083370	1/8	.085	22°	25°	35°	1°	①	30°	.025
	17083430	11/32	.085	15°	26°	38°	1°	①	42°	.025
	17083431	11/32	.085	15°	26°	38°	1°	①	42°	.025
	17083434	11/32	.085	15°	26°	38°	1°	①	42°	.025
	17083435	11/32	.085	15°	26°	38°	1°	①	42°	.025
	17083450	1/8	.085	28°	27°	35°	1°	①	45°	.025
	17083451	1/8	.085	28°	27°	35°	1°	①	45°	.025
	17083452	1/8	.085	28°	27°	35°	1°	①	45°	.025
	17083453	1/8	.085	28°	27°	35°	1°	①	45°	.025
	17083454	1/8	.085	28°	27°	35°	1°	①	45°	.025
	17083455	1/8	.085	28°	27°	35°	1°	①	45°	.025
	17083456	1/8	.085	28°	27°	35°	1°	①	45°	.025
	17083458	1/4	.085	28°	27°	35°	1°	①	45°	.025
	17083459	1/4	.085	28°	27°	35°	1°	①	45°	.025
	17083630	1/4	.085	28°	27°	35°	1°	①	45°	.025
	17083631	1/4	.085	28°	27°	35°	1°	①	45°	.025
	17083632	1/4	.085	28°	27°	35°	1°	①	45°	.025
	17083633	1/4	.085	28°	27°	35°	1°	①	45°	.025
	17083634	1/4	.085	28°	27°	35°	1°	①	45°	.025
	17083635	1/4	.085	28°	27°	35°	1°	①	45°	.025
	17083636	1/4	.085	28°	27°	35°	1°	①	45°	.025
	17083650	1/8	.085	28°	27°	35°	1°	①	45°	.025

Continued

ADJUSTMENT SPECIFICATIONS continued

Year	Carb. Production No.	Float Level	Choke Coil Lever	Choke Rod	Vacuum Break		Air Valve Rod	Choke Setting	Unloader	Secondary Lockout
					Primary	Secondary				
1984	17072683	9/32	.085	28°	25°	35°	1°	①	45°	.025
	17074812	9/32	.085	28°	25°	35°	1°	①	45°	.025
	17084356	9/32	.085	22°	25°	30°	1°	①	30°	.025
	17084357	9/32	.085	22°	25°	30°	1°	①	30°	.025
	17084358	9/32	.085	22°	25°	30°	1°	①	30°	.025
	17084359	9/32	.085	22°	25°	30°	1°	①	30°	.025
	17084368	1/8	.085	22°	25°	30°	1°	①	30°	.025
	17084370	1/8	.085	22°	25°	30°	1°	①	30°	.025
	17084430	11/32	.085	15°	26°	38°	1°	①	42°	.025
	17084431	11/32	.085	15°	26°	38°	1°	①	42°	.025
	17084434	11/32	.085	15°	26°	38°	1°	①	42°	.025
	17084435	11/32	.085	15°	26°	38°	1°	①	42°	.025
	17084452	5/32	.085	28°	25°	35°	1°	①	45°	.025
	17084453	5/32	.085	28°	25°	35°	1°	①	45°	.025
	17084455	5/32	.085	28°	25°	35°	1°	①	45°	.025
	17084456	5/32	.085	28°	25°	35°	1°	①	45°	.025
	17084458	5/32	.085	28°	25°	35°	1°	①	45°	.025
	17084532	5/32	.085	28°	25°	35°	1°	①	45°	.025
	17084534	5/32	.085	28°	25°	35°	1°	①	45°	.025
	17084535	5/32	.085	28°	25°	35°	1°	①	45°	.025
	17084537	5/32	.085	28°	25°	35°	1°	①	45°	.025
	17084538	5/32	.085	28°	25°	35°	1°	①	45°	.025
	17084540	5/32	.085	28°	25°	35°	1°	①	45°	.025
	17084542	1/8	.085	28°	25°	35°	1°	①	45°	.025
	17084632	9/32	.085	28°	25°	35°	1°	①	45°	.025
	17084633	9/32	.085	28°	25°	35°	1°	①	45°	.025
	17084635	9/32	.085	28°	25°	35°	1°	①	45°	.025
	17084636	9/32	.085	28°	25°	35°	1°	①	45°	.025
1985	17084534	5/32	.085	28°	25°	35°	1°	①	35°	.025
	17084535	5/32	.085	28°	25°	35°	1°	①	35°	.025
	17084540	5/32	.085	28°	25°	35°	1°	①	35°	.025
	17084542	1/8	.085	28°	25°	35°	1°	①	35°	.025
	17085006	1/8	.085	22°	21°	—	1°	①	30°	.025
	17085356	1/8	.085	22°	25°	30°	1°	①	30°	.025
	17085357	9/32	.085	22°	25°	30°	1°	①	30°	.025
	17085358	1/8	.085	22°	25°	30°	1°	①	30°	.025
	17085359	9/32	.085	22°	25°	30°	1°	①	30°	.025
	17085368	1/8	.085	22°	25°	30°	1°	①	30°	.025
	17085369	9/32	.085	22°	25°	30°	1°	①	30°	.025
	17085370	1/8	.085	22°	25°	30°	1°	①	30°	.025
	17085371	9/32	.085	22°	25°	30°	1°	①	30°	.025
	17085388	1/8	.085	22°	21°	—	1°	①	30°	.025
	17085452	5/32	.085	28°	25°	35°	1°	①	35°	.025
	17085453	5/32	.085	28°	25°	35°	1°	①	35°	.025
	17085458	5/32	.085	28°	25°	35°	1°	①	35°	.025
1986	17084534	5/32	.085	28°	25°	35°	1°	①	45°	.025
	17084535	5/32	.085	28°	25°	35°	1°	①	45°	.025
	17084540	5/32	.085	28°	25°	35°	1°	①	45°	.025
	17084542	1/8	.085	28°	25°	35°	1°	①	45°	.025

① — Tamper-resistant.

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vice float bowl will include a factory pre-set and plugged adjustable part throttle screw.

A hot idle compensator is used on some models and is located in the air horn. The opening and closing of the hot idle compensator valve is controlled by a bi-metal strip that is calibrated to a specific temperature. When the valve opens, additional air is allowed to bypass the throttle valves and enter the intake manifold to prevent rough idle during periods of hot engine operation.

The idle mixture screw is recessed in the throttle body and is sealed with a hardened steel plug to prevent alteration of the factory pre-set mixture setting. The plug should not be removed and the mixture screw readjusted unless required by major carburetor overhaul or throttle body replacement.

The E2SE carburetor includes special design features for use with the Computer Controlled Catalytic Converter (C4) System or the Computer Command Control (C3) System. An electrically operated mixture control solenoid mounted in the air horn, controls air and fuel metering to the idle and main metering systems of the carburetor. The plunger located at the end of the solenoid is submerged in the fuel chamber of the float bowl. This plunger is controlled by an electrical signal from the Electronic Control Module (ECM). The Electronic Control Module responding to signals from the oxygen sensor in the exhaust and other engine operating condition signals, energizes the solenoid to move the plunger down to the lean position or de-energizes the solenoid to move the plunger up to the rich position to control fuel delivery to the idle and main metering systems. When the plunger is in the lean position, fuel metering is controlled by a lean mixture screw located in the float bowl. When the plunger is in the rich position, the additional fuel is metered to the main fuel well through a rich mixture screw located at the end of the fuel supply channel in the float bowl. Air metered to the idle system is controlled by the up and down movement of the mixture control solenoid plunger. The plunger increases or decreases air supplied to the idle system which is further metered by the idle air bleed screw. The plunger cycles up and down approximately 10 times per second, controlling air and fuel mixtures.

On 1982 models with 4-112 (1.8L) and 4-121 (2.0L) engines, an idle speed control motor which is controlled by the Electronic Control Module is used to control idle speed, Fig. 4. The curb idle speed is programmed into the Electronic Control Module and no attempt should be made to adjust idle speed using the idle speed control motor.

ON-VEHICLE ADJUSTMENTS

Use care not to remove the special friction reducing coating applied to the primary and secondary throttle shafts, the secondary actuating lever and lockout lever. A special graphite compound is also applied to the secondary throttle bore and valve.

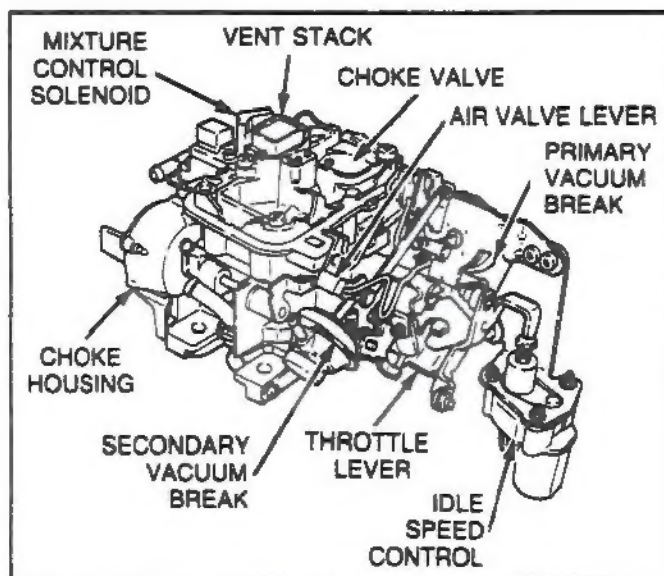


Fig. 4 E2SE carburetor equipped with idle speed control motor

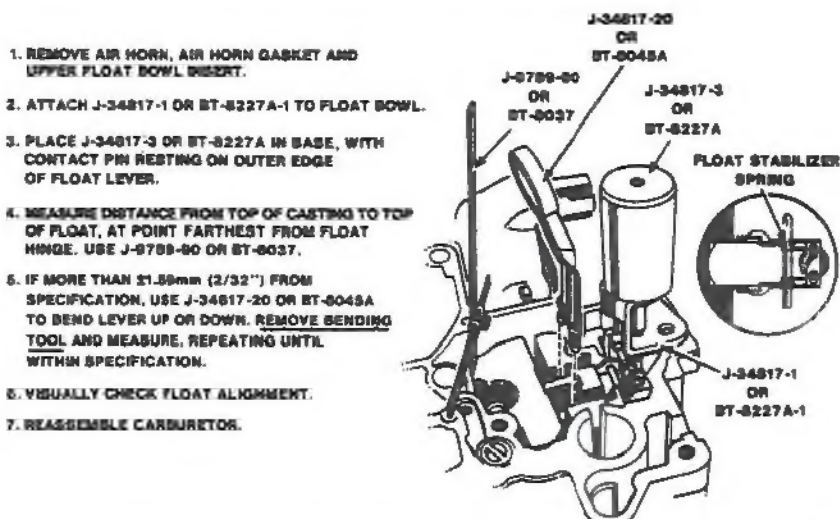


Fig. 5 Float level adjustment. 2SE & E2SE carburetors

- ① IF RIVETED, DRILL OUT AND REMOVE RIVETS. REMOVE CHOKE COVER AND STAT ASSEMBLY.
- ② PLACE FAST IDLE SCREW ON HIGH STEP OF FAST IDLE CAM.
- ③ PUSH ON INTERMEDIATE CHOKE LEVER UNTIL CHOKE VALVE IS CLOSED.
- ④ INSERT .085" (2.18mm) PLUG GAGE IN HOLE.
- ⑤ EDGE OF LEVER SHOULD JUST CONTACT SIDE OF GAGE.
- ⑥ SUPPORT AT "S" AND BEND INTERMEDIATE CHOKE LINK TO ADJUST.

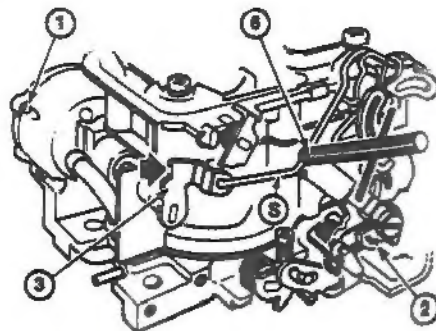
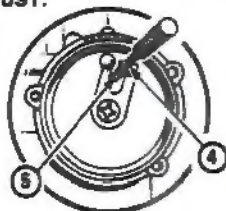


Fig. 6 Choke coil lever adjustment w/single tang lever. 2SE & E2SE carburetors

- ① IF RIVETED, DRILL OUT AND REMOVE RIVETS. REMOVE CHOKE COVER AND STAT ASSEMBLY.
- ② PLACE FAST IDLE SCREW ON HIGH STEP OF FAST IDLE CAM.
- ③ PUSH ON INTERMEDIATE CHOKE LEVER UNTIL CHOKE VALVE IS CLOSED.
- ④ INSERT .085" (2.18mm) PLUG GAGE IN HOLE.
- ⑤ EDGE OF LEVER SHOULD JUST CONTACT SIDE OF GAGE.
- ⑥ SUPPORT AT "S" AND BEND INTERMEDIATE CHOKE LINK TO ADJUST.

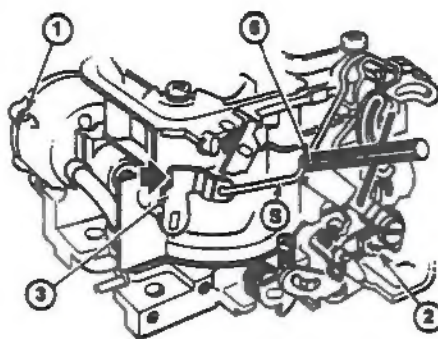
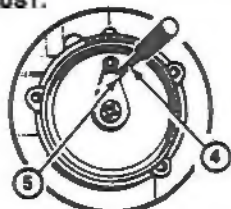


Fig. 7 Choke coil lever adjustment w/dual tang lever. 2SE & E2SE carburetors

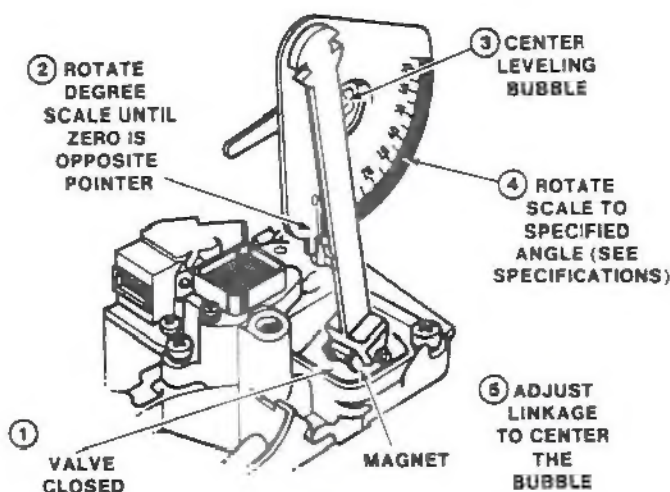


Fig. 8 Carburetor angle gauge installation

- ① ATTACH RUBBER BAND TO INTERMEDIATE CHOKE LEVER.
- ② OPEN THROTTLE TO ALLOW CHOKE VALVE TO CLOSE.
- ③ SET UP ANGLE GAGE AND SET ANGLE TO SPECIFICATIONS.
- ④ PLACE FAST IDLE SCREW ON SECOND STEP OF CAM AGAINST RISE OF HIGH STEP.
- ⑤ PUSH ON CHOKE SHAFT LEVER TO OPEN CHOKE VALVE AND TO MAKE CONTACT WITH BLACK CLOSING TANG.
- ⑥ SUPPORT AT "S" AND ADJUST BY BENDING FAST IDLE CAM LINK UNTIL BUBBLE IS CENTERED.

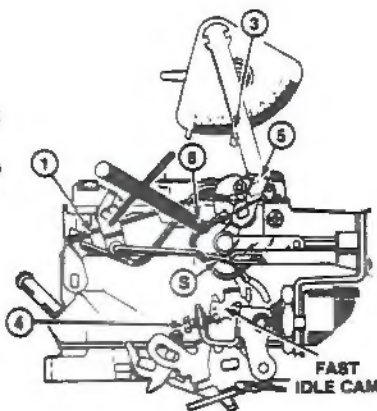


Fig. 9 Choke rod adjustment (Typical) 2SE & E2SE carburetors

CURB IDLE SPEED ADJUSTMENT

On some vehicles equipped with computerized emission control systems, idle speed is controlled by the Idle Speed Control (ISC) motor and is not adjustable. Refer to vehicle emission label for specific applications. If the ISC is found defective, a new one can be installed and must be adjusted to specifications. The procedure below applies to carburetors without an ISC motor.

Make all adjustments with engine at normal operating temperature, choke fully open, air cleaner installed and A/C off, except where noted.

1. Disconnect and plug vacuum hoses as directed on vehicle emission label.
2. Check and, if necessary, adjust ignition timing to specifications.
3. On vehicles less A/C without idle speed solenoid, turn idle speed screw inward or outward until specified idle speed is obtained.
4. On vehicles less A/C with idle speed solenoid, proceed as follows:
 - a. With solenoid energized and transmission in Drive (manual transmission in Neutral), open throttle and allow solenoid plunger to fully extend.
 - b. Turn solenoid actuating screw inward or outward until specified RPM (solenoid energized) is obtained.
 - c. Disconnect solenoid electrical connector, then turn idle speed adjusting screw inward or outward until specified RPM (base idle) is obtained.
 - d. Reconnect solenoid electrical connector.
5. On vehicles equipped with A/C, proceed as follows:
 - a. Turn idle speed adjusting screw inward or outward until specified RPM (base idle) is obtained.
 - b. With transmission in Drive (manual transmission in Neutral), disconnect A/C compressor electrical connector and switch A/C control to On position.
 - c. Open throttle and allow A/C solenoid plunger to fully extend.
 - d. Turn solenoid actuating screw inward or outward until specified RPM (solenoid energized) is obtained.
 - e. Reconnect compressor electrical lead.

FAST IDLE SPEED ADJUSTMENT

Check and, if necessary, adjust ignition timing before adjusting fast idle speed.

Make all adjustments with engine at normal operating temperature, choke fully open, air cleaner installed and A/C control Off, if equipped.

1. Disconnect and plug vacuum hoses as directed on vehicle emissions label.
2. Position fast idle screw on specified step of fast idle cam as directed on emissions label, then start engine.

GENERAL MOTORS-Carburetors

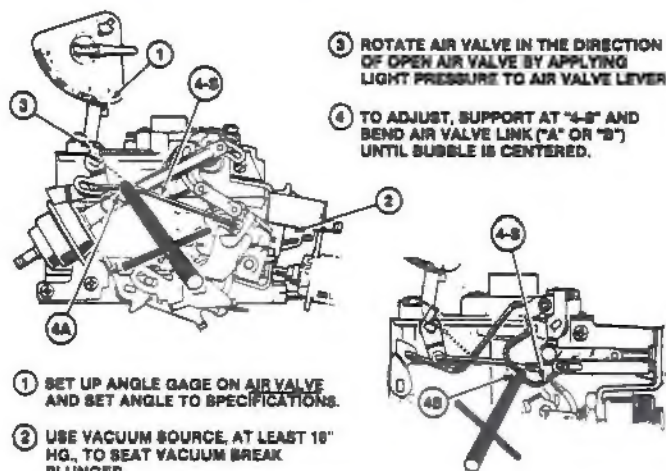


Fig. 10 Air valve rod adjustment (Typical). 2SE & E2SE carburetors

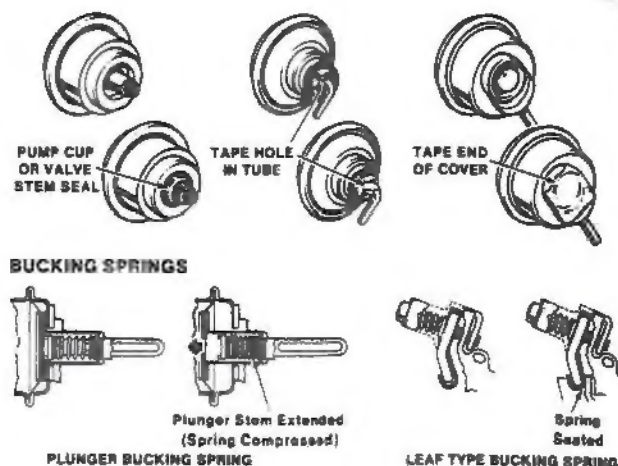


Fig. 11 Blocking air bleed holes

3. Turn fast idle screw inward or outward and adjust fast idle speed to specifications.

FLOAT LEVEL ADJUSTMENT

Refer to Fig. 5, for float adjustment procedure. Adjust as directed to dimension listed in Adjustment Specifications.

CHOKE COIL LEVER ADJUSTMENT

Refer to Figs. 6 and 7 for choke coil lever adjustment.

CHOKE ROD ADJUSTMENT

Install carburetor angle gauge tool No. J-26701 or BT-7704 as shown in Fig. 8.

With gauge installed, adjust choke rod as outlined in Fig. 9. Adjust as directed to dimension listed in Adjustment Specifications.

AIR VALVE ROD ADJUSTMENT

Install carburetor angle gauge tool No. J-26701 or BT-7704 as shown in Fig. 8.

With gauge installed, adjust air valve rod as outlined in Fig. 10. Adjust as directed to dimension listed in Adjustment Specifications.

PRIMARY VACUUM BREAK ADJUSTMENT

Prior to adjusting vacuum break, refer to Fig. 11 for air bleed hole blocking procedures.

1982 E2SE

Before performing adjustment procedure, remove primary vacuum break from carburetor and position bracket in vise, then grind off adjusting screw cap and re-install vacuum break.

1. Rotate degree scale until zero is opposite pointer, then with choke valve completely closed and fast idle screw on high step of fast idle cam, place magnet squarely on top of choke valve and rotate bubble until it is centered, Fig. 12.

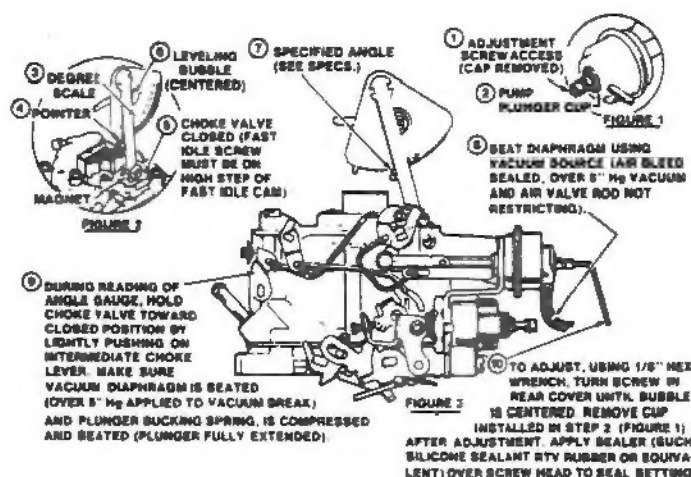


Fig. 12 Primary vacuum break adjustment. 1982 E2SE carburetor

- 1 ATTACH RUBBER BAND TO INTER-MEDIATE CHOKE LEVER.
- 2 OPEN THROTTLE TO ALLOW CHOKE VALVE TO CLOSE.
- 3 SET UP ANGLE GAGE AND SET ANGLE TO SPECIFICATION.
- 4 RETRACT VACUUM BREAK PLUNGER USING VACUUM SOURCE, AT LEAST 18\"/>

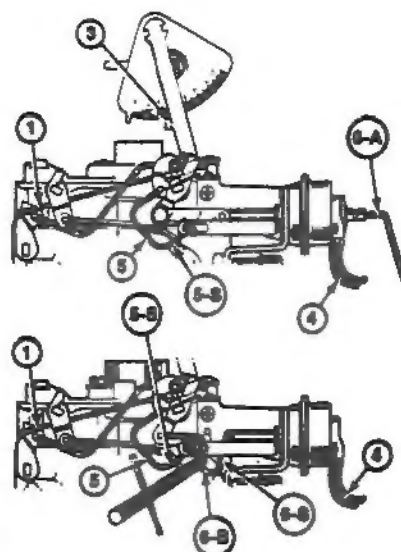


Fig. 13 Primary vacuum break adjustment w/single break unit. 1983-86 E2SE carburetor

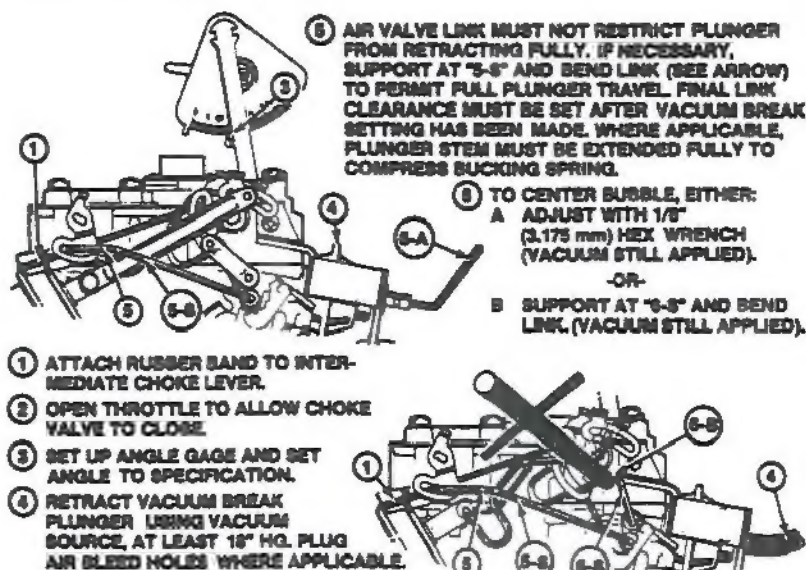


Fig. 14 Primary vacuum break adjustment w/dual break units. 1983-86 E2SE carburetor

2. Rotate scale so that specified degree for adjustment is opposite pointer.
3. Seat choke vacuum diaphragm using a vacuum source with over 5 inches Hg of vacuum. Check to ensure that air valve rod is not restricting the vacuum diaphragm from being seated. It may be necessary to bend air valve rod to obtain a slight clearance between rod and end of slot in air valve lever. If the air valve rod adjustment is disturbed, refer to the Air Valve Rod Adjustment procedure after completing the primary vacuum break adjustment.
4. Hold choke valve toward the closed position by lightly pushing on intermediate lever and note angle gauge reading.
5. If adjustment is necessary, use a $\frac{1}{8}$ inch hex wrench to rotate adjusting screw in rear cover until bubble is centered.
6. After completing adjustment, apply a suitable sealer over adjusting screw head.

1983-86 E2SE

Install carburetor angle gauge tool No. J-26701 or BT-7704 as shown in Fig. 8.

With gauge installed, adjust primary vacuum break as outlined in Figs. 13 and 14. Adjust as directed to dimension listed in Adjustment Specification.

SECONDARY VACUUM BREAK ADJUSTMENT

Prior to adjusting vacuum break, refer to Fig. 11 for air bleed hole blocking procedures.

1982 E2SE

Before performing adjustment procedure, remove secondary vacuum break from carburetor and position bracket in vise, then grind off adjusting screw cap and reinstall vacuum break. Plug vacuum break end cover using an accelerator pump plunger cup or equivalent. After completing adjusting remove pump plunger cup.

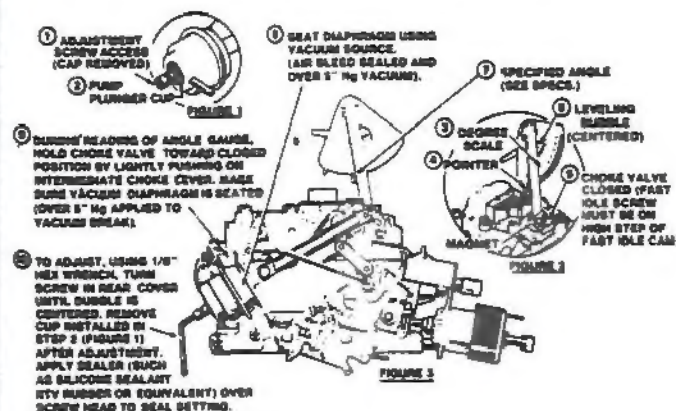


Fig. 15 Secondary vacuum break adjustment. 1982 E2SE carburetor

1. Rotate degree scale so that zero is opposite pointer, then with choke valve completely closed and fast idle screw on high step of fast idle cam, place magnet on top of choke valve and rotate until bubble is centered, Fig. 15.
2. Rotate scale so that specified degree for adjustment is opposite pointer.
3. Seat choke diaphragm using a vacuum source with over 5 inches Hg of vacuum.
4. Hold choke valve toward the closed position by lightly pushing on intermediate choke lever and note angle gauge reading. When noting reading check to ensure that vacuum diaphragm is seated.
5. Rotate adjusting screw in rear cover until bubble is centered. After completing adjustment, apply a suitable sealer over adjusting screw head. Remove pump plunger cup from end cover before applying sealer over adjusting screw head.

1983-86 E2SE

Install carburetor angle gauge tool No. J-26701 or BT-7704 as shown in Fig. 8.

With gauge installed, adjust secondary vacuum break as outlined in Fig. 16. Adjust as directed to dimension listed in Adjustment Specifications.

UNLOADER ADJUSTMENT

1982 Units

1. Rotate degree scale until zero is opposite pointer, then with choke valve completely closed, place magnet on top of choke valve and rotate bubble until centered, Fig. 17.
2. Rotate degree scale so specified degree for adjustment is opposite pointer.
3. With choke setting properly adjusted, hold primary throttle valve wide open.
4. On warm engines and 1983-84 units, close choke valve by pushing on intermediate choke lever and hold in position with a rubber band.
5. To adjust, bend tang on throttle lever until bubble is centered.

1. ATTACH RUBBER BAND TO INTER-MEDIATE CHOKE LEVER.
2. OPEN THROTTLE TO ALLOW CHOKE VALVE TO CLOSE.
3. SET UP ANGLE GAGE AND SET ANGLE TO SPECIFICATION.
4. RETRACT VACUUM BREAK PLUNGER USING VACUUM SOURCE, AT LEAST 18\"/>

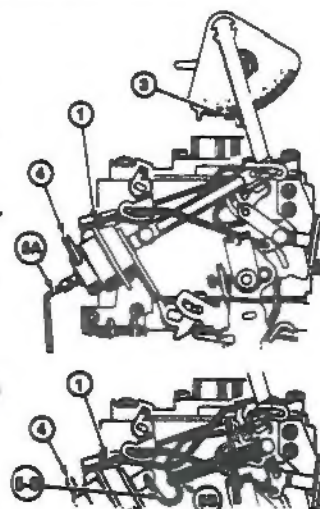


Fig. 16 Secondary vacuum break adjustment. 1983-86 E2SE carburetor

GENERAL MOTORS-Carburetors

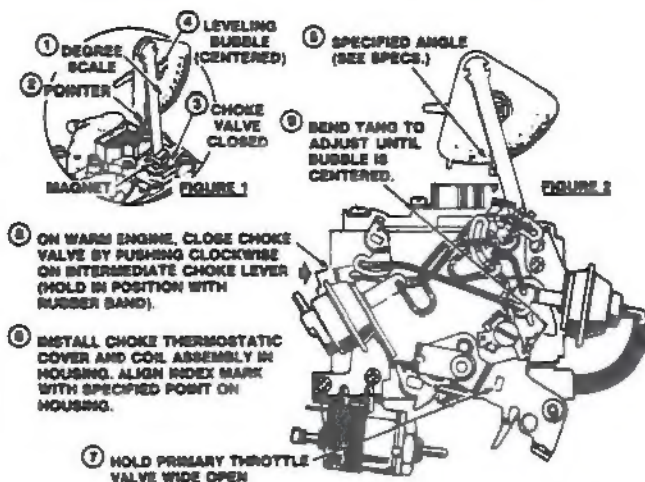


Fig. 17 Unloader adjustment. 1982 2SE & E2SE carburetors

1. ATTACH RUBBER BAND TO INTERMEDIATE CHOKE LEVER.
2. OPEN THROTTLE TO ALLOW CHOKE VALVE TO CLOSE.
3. SET UP ANGLE GAGE AND SET ANGLE TO SPECIFICATIONS.
4. HOLD THROTTLE LEVER IN WIDE OPEN POSITION.
5. PUSH ON CHOKE SHAFT LEVER TO OPEN CHOKE VALVE AND TO MAKE CONTACT WITH BLACK CLOSING TANG.
6. ADJUST BY BENDING TANG UNTIL BUBBLE IS CENTERED.

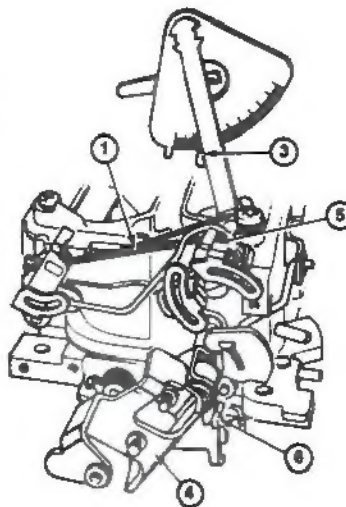


Fig. 18 Unloader adjustment. 1983-86 2SE & E2SE carburetor

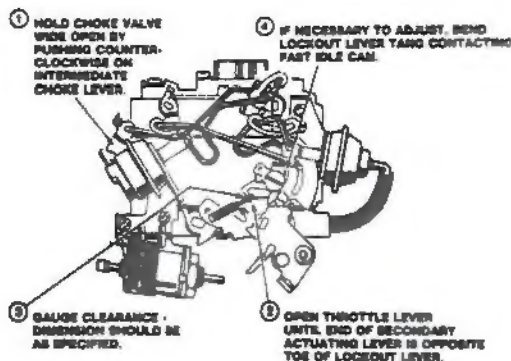


Fig. 19 Secondary lockout adjustment (Typical). 2SE & E2SE carburetor

1983-86 Units

Install carburetor angle gauge tool No. J-26701 or BT-7704 as shown in Fig. 8.

With gauge installed, adjust unloader as outlined in Fig. 18. Adjust as directed to dimension listed in Adjustment Specifications.

SECONDARY LOCKOUT ADJUSTMENT

1. Hold choke valve wide open by pulling on intermediate choke lever.
2. Position throttle lever until end of secondary actuating lever is opposite toe of lockout lever, Fig. 19.
3. Insert specified gauge between throttle lever and secondary lockout lever toe.
4. To adjust, bend lockout lever tang contacting fast idle cam.

AIR VALVE SPRING ADJUSTMENT

1982-84 E2SE Carburetor

1. Loosen lock screw, then turn adjusting screw clockwise until air valve is partially open, Fig. 20. On 1983-86 units, it may be necessary to remove the intermediate choke rod to gain access to the lock screw.
2. Turn adjusting screw counterclockwise until air valve just closes, then turn screw an additional turn counterclockwise and tighten lock screw. On 1983 units with part No. 17083650, rotate the screw 1/2 turn only.
3. Lubricate air valve shaft pin and closing spring with lithium base grease.

IDLE SPEED CONTROL (ISC) ADJUSTMENT

Do not use ISC plunger to adjust curb idle speed, as idle speed is controlled by the Electronic Control Module (ECM). When a new ISC is installed, a base (minimum authority) and a high (maximum authority) RPM check must be made, and adjustments performed as needed. When

1. TURN TENSION ADJUSTING SCREW COUNTERCLOCKWISE UNTIL AIR VALVE JUST CLOSURES THEN TURN ADJUSTING SCREW COUNTERCLOCKWISE SPECIFIED NUMBER OF TURNS.
2. TURN TENSION ADJUSTING SCREW COUNTERCLOCKWISE UNTIL AIR VALVE OPENING PART WAY.

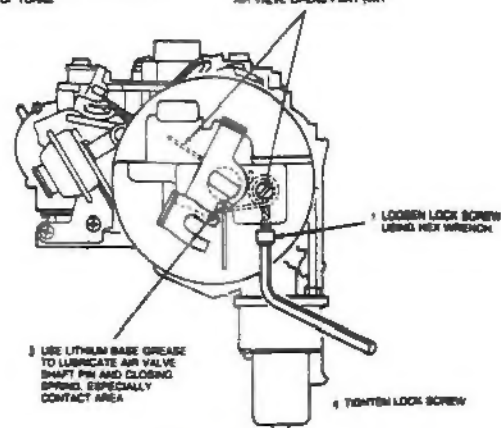


Fig. 20 Air valve spring adjustment. 1982-84 E2SE carburetor

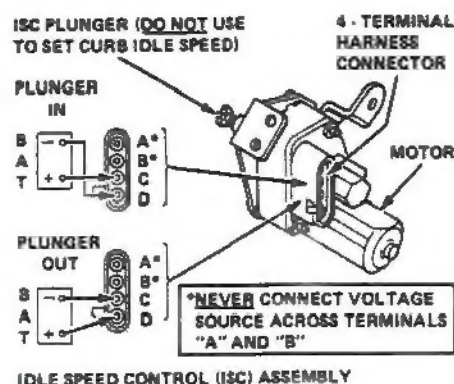


Fig. 21 Idle Speed Control (ISC) motor test connections. E2SE carburetor

Year	Engine (VIN Code)	Volt.	Throttle Position
1982	4-112/1.8 (G)	.26	ISC retracted at slow idle
	V6-173/2.8 (B, X, Z & 1)	.26	Engine stopped, curb idle position
1983	V6-173/2.9 (L, X & Z)	.26	Curb idle, solenoid retracted
1984	V6-173/2.8 (B, Z)	.26	Curb idle, solenoid retracted
	V6-173/2.8 (X)	.31	Curb idle, solenoid retracted
1985-86	V6-173/2.8 (X)	.3	Curb idle, solenoid retracted

Fig. 23 Throttle Position Sensor (TPS) adjustment specifications. E2SE carburetor

making low and high speed adjustments, low speed adjustment must be performed first.

1982 4-112, 121 W/E2SE Carburetor

1. Connect dwell meter to test lead in MC solenoid harness (usually a green wire) and set meter on 6 cylinder scale. Connect tachometer to engine following manufacturer's instructions.
2. Start engine and run at fast idle until it reaches normal operating temperature and dwell reading begins to fluctuate.
3. Stop engine and disconnect wiring harness connector to ISC motor. Do not connect or disconnect wiring harness connector to ILC motor with ignition in on position, as ECM will be damaged.
4. Using a jumper wire, connect battery voltage to terminal "C" on ISC motor, Fig. 21, then connect a jumper wire between terminal "D" and ground. Do not leave battery voltage connected to ISC motor longer than necessary to retract solenoid plunger. Do not connect battery voltage to terminals "A" or "B" on motor. ISC motor will be damaged if connections are improperly made.

5. Start engine and run until dwell reading begins to fluctuate. Place transmission in drive (manual transmission in neutral).
6. With ISC plunger fully retracted, adjust idle speed to specified minimum authority RPM, Fig. 22, with throttle stop screw.
7. Place transmission in neutral and reverse jumper wire connections. Connect battery voltage to terminal "D," and connect terminal "C" to ground. Leave jumper wires connected only long enough to fully extend ISC plunger.
8. With plunger fully extended, adjust idle speed to specified maximum authority RPM, Fig. 22, by turning ISC plunger with tool J-29607 or equivalent. Adjustments must be made as quickly as possible. If engine RPM increases, adjustment cannot be performed, engine will have to be stopped and the procedure will have to be restarted from step 2.
9. Stop engine. Reconnect wiring harness connector to ISC motor. Test connections to ISC motor will cause "Check Engine" light to remain on until wiring harness is reconnected to motor. An intermittent trouble code will then be

stored in the ECM memory which must be cleared.

THROTTLE POSITION SENSOR (TPS) ADJUSTMENT

Do not remove plug sealing TPS adjustment or adjust TPS unless carburetor is overhauled or "Computer Command Control (C3)" system diagnosis indicates a problem with the sensor.

1982-86

1. Using a 5/64 inch drill, make a hole in TPS adjustment screw hole plug. Use caution to prevent damaging TPS adjustment screw.
2. Using suitable slide hammer, remove plug from hole.
3. Disconnect TPS connector, then using suitable wires, jumper all three terminals.
4. Connect digital ohmmeter J-29125-A or equivalent to TPS connector center terminal (B) to bottom terminal (C).
5. With ignition On and engine not running, turn TPS screw with suitable screwdriver to obtain specified TPS idle voltage, Fig. 23.
6. Turn ignition Off, then install new plug over TPS adjustment hole.

Year/Engine (VIN Code)	Carburetor Number	Minimum Authority ①	Maximum Authority ②
1982 4-112/1.8 (G)	17081600	700D	2300P
	17082300	700D	2300P
	17081601	750N	1700N
	17082301	750N	1700N
	17081606	830D	2300P
	17082304	830D	2300P
	17081607	700N	1200N
	17082303	700N	1200N
	17081609	800N	1700N
	17082305	800N	1700N
	17081700	③	1600P
	17081701	④	1900N
1982 4-121/ 2.0 (B)	17082630	700D	2300P
	17082631	750N	1700N

- ①—Plunger retracted.
- ②—Plunger extended.
- ③—Exc. Chevrolet, 680D RPM; Chevrolet, 725D RPM.
- ④—Exc. Chevrolet, 680 RPM; Chevrolet, 725 RPM.

Fig. 22 Idle Speed Control (ISC) motor adjustment specifications. E2SE carburetor

Specifications

GENERAL ENGINE SPECIFICATIONS

Year	Engine		Fuel System	Bore & Stroke	Compression Ratio	Net Brake H.P. @ RPM ③	Maximum Torque Ft. Lbs. @ RPM	Normal Oil Pressure Pounds
	CID ① / Liter	VIN Code ②						
1982	4-151, 2.5L ⑭	2	Fuel Injection	4.00 x 3.00	8.2	90 @ 4000	132 @ 2800	37.5
	V6-173, 2.8L	1	E2SE, 2 Bbl. ④	3.50 x 2.99	8.5	102 @ 4800	142 @ 2400	50-65
	V6-229, 3.8L ⑪	K	E2ME, 2 Bbl. ④	3.736 x 3.480	8.6	110 @ 4200	170 @ 2000	50-65
	V6-231, 3.8L ⑤	A	E2ME, 2 Bbl. ④	3.80 x 3.40	8.0	110 @ 3800	190 @ 1600	50-65
	V8-262, 4.3L ⑧ ⑩	V	Fuel Injection	4.057 x 3.385	22.5	85 @ 3600	165 @ 1600	30-45
	V8-267, 4.4L ⑪	J	E2ME, 2 Bbl. ④	3.50 x 3.48	8.3	115 @ 4000	200 @ 2400	45
	V8-305, 5.0L	H	E4ME, 4 Bbl. ④	3.736 x 3.480	8.6	145 @ 4000	240 @ 2400	50-65
	V8-305, 5.0L	7	Fuel Injection	3.736 x 3.480	9.5	165 @ 4200	240 @ 2400	50-65
	V8-350, 5.7L	6	Fuel Injection	4.00 x 3.48	9.0	200 @ 4200	285 @ 2800	45
	V8-350, 5.7L ⑧ ⑩	N	Fuel Injection	4.057 x 3.385	22.5	105 @ 3200	200 @ 1600	30-45
1983	4-151, 2.5L ⑭	2	Fuel Injection	4.00 x 3.00	8.2	90 @ 4000	134 @ 2800	37.5
	V6-173, 2.8L	1	E2SE, 2 Bbl. ④	3.50 x 2.99	8.5	107 @ 4800	145 @ 2100	50-65
	V6-229, 3.8L	9	E2ME, 2 Bbl. ④	3.736 x 3.480	8.6	110 @ 4200	170 @ 2000	50-65
	V6-231, 3.8L ⑤	A	E2ME, 2 Bbl. ④	3.80 x 3.40	8.0	110 @ 3800	190 @ 1600	45
	V6-262, 4.3L ⑧ ⑩	V	Fuel Injection	4.057 x 3.385	21.6	85 @ 3600	165 @ 1600	30-45
	V8-305, 5.0L	H	E4ME, 4 Bbl. ④	3.736 x 3.480	8.6	150 @ 3800	240 @ 2400	50-65
	V8-305, 5.0L	S	Fuel Injection	3.736 x 3.480	9.5	175 @ 4200	250 @ 2800	45
	V8-350, 5.7L ⑧ ⑩	N	Fuel Injection	4.057 x 3.385	21.6	105 @ 3200	200 @ 1600	30-45
1984	4-151, 2.5L ⑭	2	Fuel Injection	4.00 x 3.00	9.0	90 @ 4000	132 @ 2800	37.5
	V6-173, 2.8L	1	E2SE, 2 Bbl. ④	3.50 x 2.99	8.5	112 @ 5100	148 @ 2400	50-65
	V6-229, 3.8L	9	E2ME, 2 Bbl. ④	3.736 x 3.480	8.6	110 @ 4200	170 @ 2000	50-65
	V6-231, 3.8L ⑤	A	E2ME, 2 Bbl. ④	3.80 x 3.40	8.0	110 @ 3800	190 @ 1600	45
	V6-262, 4.3L ⑧ ⑩	V	Fuel Injection	4.057 x 3.385	21.6	85 @ 3600	165 @ 1600	30-45
	V8-305, 5.0L	H	E4ME, 4 Bbl. ④	3.736 x 3.480	8.6	150 @ 3800	240 @ 2400	50-65
	V8-305 H.O. 5.0L	G	E4ME, 4 Bbl. ④	3.736 x 3.480	9.5	190 @ 4800	240 @ 3200	50-65
	V8-350, 5.7L	8	Fuel Injection	4.00 x 3.48	9.0	205 @ 4300	290 @ 2800	50-65
	V8-350, 5.7L ⑧ ⑩	N	Fuel Injection	4.057 x 3.385	21.6	105 @ 4200	200 @ 1600	30-45
1985	4-151/2.5L ⑭	2	Fuel Injection	4.00 x 3.00	9.0	88 @ 4400	132 @ 2800	37.5
	V6-173/2.8	S	Fuel Injection	3.50 x 2.99	8.9	135 @ 5100	165 @ 3600	50-65
	V6-262/4.3L	Z	Fuel Injection	4.00 x 3.48	9.3	130 @ 3600	210 @ 2000	50-65
	V8-305/5.0L	F	Fuel Injection	3.74 x 3.48	9.5	215 @ 4400	275 @ 3200	—
	V8-305/5.0L ⑮	G	E4ME, 4 Bbl. ④	3.74 x 3.48	9.5	190 @ 4800	240 @ 3200	50-65
	V8-305/5.0L ⑮	G	E4ME, 4 Bbl. ④	3.74 x 3.48	9.5	180 @ 4800	235 @ 3200	50-65
	V8-305/5.0L ⑮	H	E4ME, 4 Bbl. ④	3.74 x 3.48	8.6	165 @ 4400	250 @ 2000	50-65
	V8-305/5.0L ⑦	H	E4ME, 4 Bbl. ④	3.74 x 3.48	8.6	150 @ 4000	240 @ 2000	50-65
	V8-305/5.0L ⑧	H	E4ME, 4 Bbl. ④	3.74 x 3.48	8.6	165 @ 4200	245 @ 2400	50-65
	V8-350/5.7L ②	8	Fuel Injection	4.00 x 3.48	9.0	230 @ 4000	330 @ 3200	50-65
	V8-350/5.7L	N	Fuel Injection	4.00 x 3.39	22.1	105 @ 3200	200 @ 1600	30-45

CID—
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GENERAL

GENERAL ENGINE SPECIFICATIONS—Continued

Engine		Fuel System	Bore & Stroke	Compression Ratio	Net Brake H.P. @ RPM ^③	Maximum Torque Ft. Lbs. @ RPM	Normal Oil Pressure Pounds
CID ^① /Liter	VIN Code ^②						
4-151/2.5L ^⑭	2	Fuel Injection	4.00 x 3.48	9.0	88 @ 4800	132 @ 2800	37.5
V6-173/2.8L	S	Fuel Injection	3.50 x 2.99	8.9	135 @ 5100	160 @ 3900	50-65
V6-262/4.3L	Z	Fuel Injection	4.00 x 3.48	9.3	140 @ 4000	225 @ 2000	50-65
V8-305/5.0L	F	Fuel Injection	3.74 x 3.48	9.5	190 @ 4000	285 @ 2800	50-65
V8-305/5.0L ^⑮	G	E4ME, 4 Bbl. ^④	3.74 x 3.48	9.5	190 @ 4800	240 @ 3200	50-65
V8-305/5.0L ^⑮	G	E4ME, 4 Bbl. ^④	3.74 x 3.48	9.5	180 @ 4400	225 @ 3200	50-65
V8-305/5.0L ^⑮	H	E4ME, 4 Bbl. ^④	3.74 x 3.48	9.5	⑬	⑧	50-65
V8-305/5.0L ^④	H	E4ME, 4 Bbl. ^④	3.74 x 3.48	9.5	165 @ 4200	245 @ 2400	50-65
V8-305/5.0L ^⑦	H	E4ME, 4 Bbl. ^④	3.74 x 3.48	9.5	150 @ 4000	240 @ 2000	50-65
V8-350/5.7L ^⑮	8	Fuel Injection	4.00 x 3.48	9.5	230 @ 4000	330 @ 3200	50-65
V6-173/2.8L	S	Fuel Injection	3.50 x 2.99	8.9	135 @ 4900	160 @ 3900	50-65
V6-262/4.3L	Z	Fuel Injection	4.00 x 3.43	9.3	140 @ 4200	225 @ 2000	50-65
V8-305/5.0L	F	Fuel Injection	3.74 x 3.48	9.5	—	—	50-65
V8-305/5.0L	G	E4ME, 4 Bbl. ^④	3.74 x 3.48	9.5	—	—	50-65
V8-305/5.0L	H	E4ME, 4 Bbl. ^④	3.74 x 3.48	8.6	—	—	50-65
V8-307/5.0L	Y	E4MC, 4 Bbl. ^④	3.80 x 3.40	8.0	140 @ 3200	255 @ 2000	50-65
V8-350/5.7L	6	E4ME, 4 Bbl. ^④	4.00 x 3.48	8.2	—	—	50-65
V8-350/5.7L ^⑮	8	Fuel Injection	4.00 x 3.48	9.0	225 @ 4400	300 @ 2800	50-65
V8-350/5.7L ^⑮	8	Fuel Injection	4.00 x 3.48	9.5	240 @ 4000	345 @ 3200	50-65
V6-173/2.8L	S	Fuel Injection	3.50 x 2.99	8.9	—	—	50-65
V6-262/4.3L	Z	Fuel Injection	4.00 x 3.48	9.3	140 @ 4000	225 @ 2000	50-65
V8-305/5.0L	F	Fuel Injection	3.74 x 3.48	9.3	—	—	50-65
V8-305/5.0L	G	4 Bbl. ^④	3.74 x 3.48	9.3	200 @ 4800	225 @ 3200	50-65
V8-305/5.0L	H	4 Bbl. ^④	3.74 x 3.48	9.3	180 @ 4000	240 @ 2000	50-65
V8-307/5.0L	Y	4 Bbl. ^④	3.80 x 3.40	8.0	—	—	50-65
V8-350/5.7L ^⑮	8	Fuel Injection	4.00 x 3.48	9.3	—	—	50-65
V8-350/5.7L ^⑮	8	Fuel Injection	4.00 x 3.48	9.5	—	—	50-65

①—CID—Cubic inch displacement.

②—V.I.N.—On 1982-88 vehicles, the 8th digit in the V.I.N. denotes engine code.

③—Ratings are net—As installed in the vehicle.

④—Rochester.

⑤—For service procedures on this

engine, see Buick chapter.

⑥—Exc. IROC-Z & Z28, 245 @ 2000; IROC-Z & Z28, 250 @ 2000.

⑦—Monte Carlo.

⑧—Caprice/Impala.

⑨—For service procedures on this engine, see Oldsmobile chapter.

⑩—Diesel.

⑪—Exc. Calif.

⑫—Corvette.

⑬—Exc. IROC-Z & Z28, 155 @ 4200; IROC-Z & Z28, 185 @ 4400.

⑭—For service procedures on this engine, refer to Pontiac chapter.

⑮—Camaro.

⑯—Monte Carlo SS.